



LANDAIR
MAPPING, INC.

2004 USDA-National Agricultural Imagery Program

2m pixel DOQQs for the states of

**Montana, Wyoming, Rhode Island, Massachusetts,
Vermont, and New Hampshire**

Aerial Photography Statistics

- Completed 100% in mid-September
- Number of Aircraft: 1 + 1
- New England States: Film
- Montana & Wyoming: Digital (ADS40)
- Days on-site: 84 (25% over projected)
- Photography rate of acceptance for each mission varied between 70 and 100%

Aerial Photography: New England

2004 2003

- Total frames flown: 5461 (6118)
- Total frames to cover states 4873 (4904)
- Percent re-flight: 12% (25%)
- Total number of rolls used: 36 (43)
- Total Hours Flown: 151 (210)
- Rate of acceptance between 90 and 100%

Aerial Photography: Montana & Wyoming

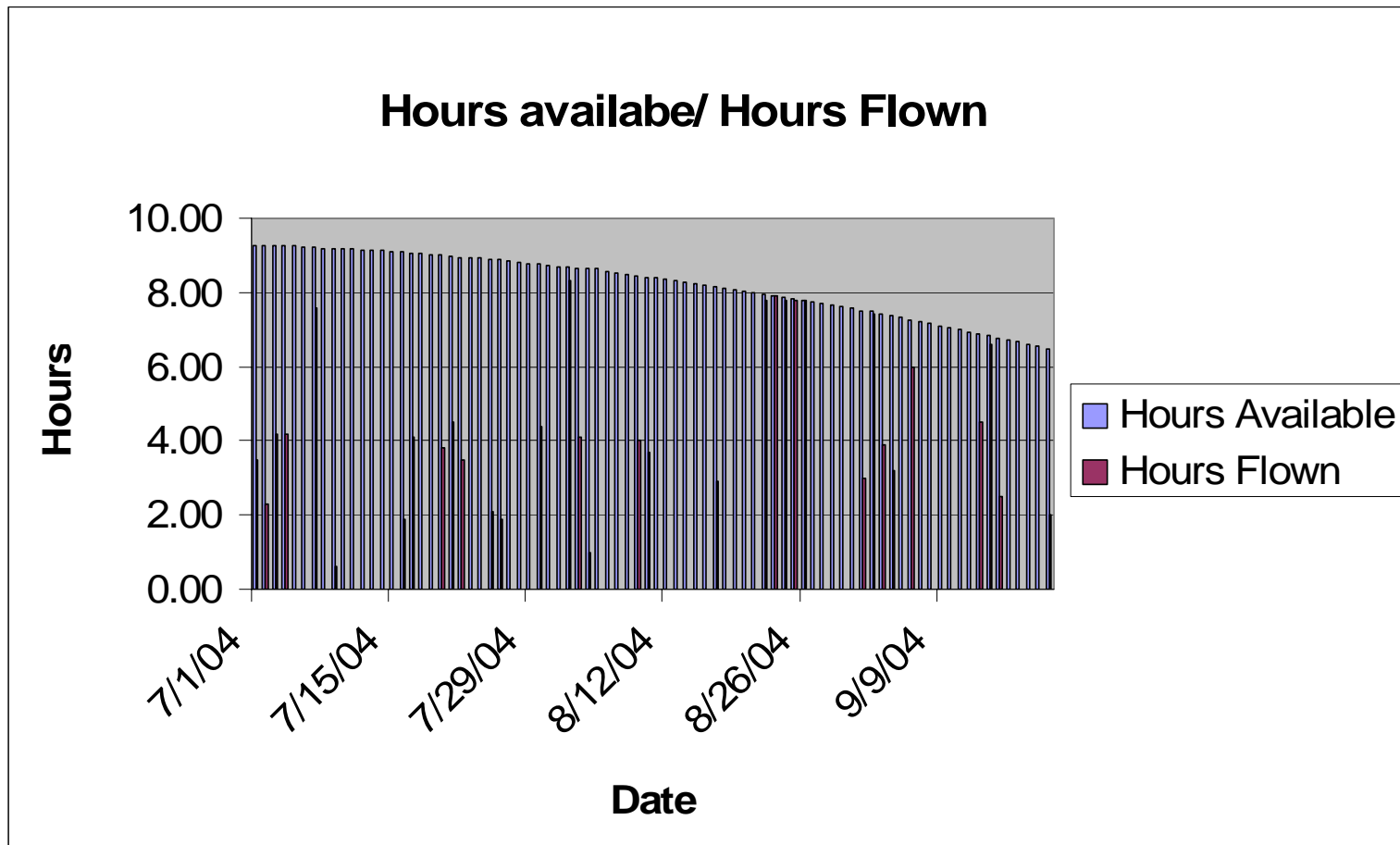
- Digital Acquisition using a Leica ADS40
- Total frames to cover states: 8788
- Projected number of flight lines: 198
- Number of lines partially re-flown: 78
- Percent of re-flights: 38% (lines)
10% (DOQQS)
- Total Hours Flown: 133
- Percent actual vs. projected: 30%

Aerial Photography: Flight Hour Summary

	June	July	August	September	Total Hours
New England		49	63	39	151
MT & WY	9	79	32 No flights between 8/15 –09/1	13	133

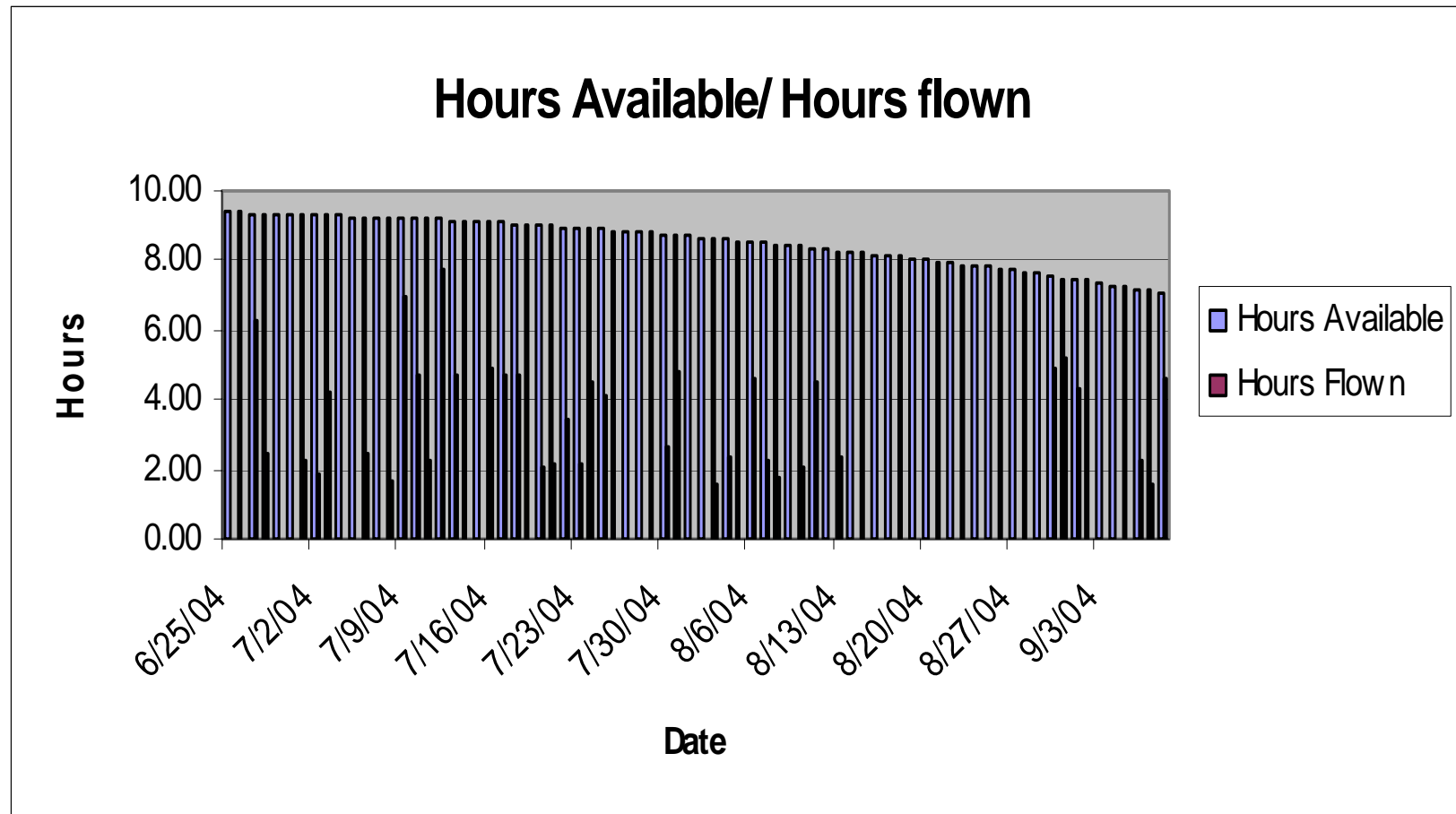
Aerial Photography: **New England**

■ Flew 22% of available time. 95% Aircraft & crew availability



Aerial Photography: MT & WY

■ Flew 28% of available time. 98% Aircraft & crew availability



Aerial Photography Limiting Factors

- Constant weather battle for the New England states in particular
- MA & RI: Frequent Airspace restrictions from Boston and New York Airports
- MT and WY weather not as favorable as expected
- Re-flights for MT & WY: Processing time for imagery Quality Assurance (QA) too extensive to quickly assess re-flight status.

Lessons Learned

- Unreliable weather forecast
- QA of digital imagery
- Re-flights of re-flights
- Re-flights of digital photography limit AT block size and hold AT process
- CCMs for Large Counties require particular attention (Mr. Sid)

CCM of Large Counties

- Mr. Sid Compression (MG2) Unstable for large mosaics.
- Mr. Sid Version 4.0 crashes and produces artifacts for mosaics larger than 12 GB.
- File size limit problem solved in version 4.1 released in November. Not tested yet.
- Compression time varies from a few hours to 13 hours + using 3 GHz Xeon Processors
- If MG2 is required for future NAIP projects, specify maximum file size or dimensions not to exceed per CCM.
- Strongly recommend MG3.

Potential Improvements

- Early notification from the USDA
- Initiate kick-off meetings including the contractor and the USDA project management and contracting teams
- Recommend that USDA creates an interactive website for flight status to avoid email issues such as spam and viruses.

Potential Improvements.

- Eliminate manual film titling
 - Manual labeling is time consuming
 - If eliminated, it could shorten the film delivery time by a few weeks
- Establish an on-site QA team for digital imagery using a mobile computer server to continuously monitor image quality and cloud cover.

Summary

- New England was extremely challenging as expected
- Aerial imagery QA is a much more critical step for the digital acquisition. If not completed proactively it could create a major bottle neck.
- The LearJet + ADS40 combination was a success!